

Claims

1. Hydromechanical clamping device (1; 41), in particular in the form of a chuck, preferably intended to be, with one end (4) thereof, mounted in a machining device, and with the other end to releasably hold a shaft tool (2), the clamping device (1; 41) comprising an inner sleeve with an axial bore (8) for receiving the shaft of the shaft tool (2), and a clamping means, **characterised in** that the inner sleeve (6; 42) and an outer sleeve (7) encloses at least one chamber (11) in which a clamping means in the shape of an annular piston (9; 43) is enclosed, which piston (9; 43) by means of hydraulically operating means is displaceable in the axial direction, wherein the piston (9; 43) and the inner sleeve (6; 42) have interacting conical surfaces (10; 51) which at axial displacement of the piston (9; 43) in one direction cause radial compression of the inner sleeve (6; 42) for clamping the shaft tool (2), and that axial displacement of the piston (9, 43) in the other direction causes relief of the inner sleeve (6; 42) for releasing the shaft tool (2).
2. Clamping device according to claim 1, **characterised in** that the hydraulic means include a pressurization chamber (12) arranged at one end of the piston, and a relief chamber (13) at the other end of the piston, which chambers (12, 13) are capable of being filled and pressurized by a hydraulic pressure medium.
3. Clamping device according to claim 1 or 2, **characterised in** that the interacting conical surfaces have a conicity that is self locking.
4. Clamping device according to any of the preceding claims, **characterised in** that the inner sleeve (6; 42) and the outer

sleeve (7) are joined together by welding, threading, soldering, gluing or with a combination thereof.

5 5. Clamping device according to any of the preceding claims, **characterised in** that a sealing means, preferably in the shape of a sealing ring (20), is arranged between the piston and the outer sleeve.

10 6. Clamping device according to claim 5, **characterised in** that the sealing means is arranged closer to the pressurization side of the piston than to the relief side.

15 7. Clamping device according to any of the preceding claims, **characterised in** that the part intended for clamping a tool is integrated with the part intended for mounting in a machining device.

20 8. Clamping device according to any of the preceding claims, **characterised in** that the clamping device comprises two or more axial chambers, wherein each chamber encloses an annular piston.

25 9. Hydromechanical clamping device (70), in particular in the form of a mandrel, preferably intended to be, with one end (72) thereof, mounted in a machining device, and with the other end to releasably hold a tool (74), the clamping device (70) comprising an inner sleeve (75) and a clamping means, **characterised in** that the inner sleeve (75) and an outer sleeve (76) encloses at least one chamber (77) in which a clamping means in the shape of an annular piston (78) is
30 enclosed, which piston (78) by means of hydraulically operating means is displaceable in axial direction, wherein the piston (78) and the outer sleeve (76) have interacting

conical surfaces (79) that at axial displacement of the piston (78) in one direction cause radial expansion of the outer sleeve for clamping the tool (74), and that axial displacement of the piston (78) in the other direction causes relief of the outer sleeve for releasing the tool (74).

10. Clamping device according to claim 9, **characterised in** that the hydraulic means include a pressurization chamber (80) arranged at one end of the piston, and a relief chamber (81) at the other end of the piston, which chambers (80, 81) are capable of being filled and pressurized by a hydraulic pressure medium.

11. Clamping device according to any of the claims 9-10, **characterised in** that the clamping device comprises two or more axial chambers, wherein each chamber encloses an annular piston.